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Infectious Bodies, Peculiar Territories: Visions of Invasion in 19th-Century Literature and Science

In the 3rd episode of the 2017 BBC miniseries *Collateral*, one of the characters, British Army Captain Sandrine Shaw, having trouble adapting to her post-Afghanistan life, expresses the following observation: “Coming back home, you feel like a germ that’s entered the bloodstream.”¹ This offhand remark is brimming with connotations: she compares herself to a germ because she feels infected or contaminated by her war experiences, and she fears she brings this contamination home with her. ‘Home’ here is implicitly equated with an organism whose bloodstream may be being infected. Today this simile is so well-worn that it barely attracts attention and its implications seem so familiar that they might as well be invisible. Yet the comparison of the British coming home and germs is surprisingly recent, perhaps no older than a century and a half.

To be used as a casual source of similes, germs had first to enter the public pool of ideas, so to speak, of how diseases were spread, together with keywords such as ‘infection,’ ‘epidemic,’ ‘contamination,’ and such. It is difficult to pinpoint the exact moment when the germ theory of disease was finally recognised as the most likely explanation of how infections such as tuberculosis and cholera worked their way into social tissues. A historian of medicine, Steven Lehrer, surmises that the year 1865 was

¹ S. J. Clarkson, dir. “Episode 3,” *Collateral* (BBC Two, 26 Feb., 2018).

when this hypothesis “gained its earliest acceptance.”² Nor is it easy to give credit to one researcher only; it was through the separate efforts of many throughout the second half of the 19th century: John Snow, Robert Koch, Louis Pasteur, and Joseph Lister, among others, whose research proved the existence of microbial infective agents and ways in which their attacks could be fought or prevented.

In this article I wish to show how the military rhetoric related to infection manifested itself in works of science and popular fiction of the late 1800s and early 1900s; how bodies of patients were perceived as battlefields on which the forces of infection and resistance fought; how similes taken from literary texts were used to show and explain the strategies infective agents employed to infiltrate and terrorise their unsuspecting victims: on the microscopic level, viruses and bacteria infecting cells; on the macroscopic level, foreign agents sneaking through the borders to wreak havoc at home. ‘Home,’ is thus an extension of us, in the literal and figurative sense, and so the infective agent, be it a microbe or an *actual* agent, is necessarily an Other: not a part of the self, but a foreign element, an uninvited visitor, an enemy that needs to be identified, isolated, and annihilated. To this end, I will present scientific and literary texts which contain two examples of uses of bodies in this ideological war: similes of bodies as peculiar territories under external threat, and bodies as sources of contagion, smuggled across the borders of actual territories.

The literary examples chosen here represent the genre of infection literature: a subgenre of invasion literature which was particularly popular in the decades between the Franco-Prussian War and the First World War (1870s to 1910s). Unlike invasion literature, which paints alarmist visions of military attacks by enemy empires—such as those in *The Battle of Dorking* and *The Riddle of the Sands*—infection literature focuses on the threats on a much smaller scale in terms of size (but not danger): oriental microbial pathogens which can be smuggled in and which have the capacity to invade by means of infection. In other words, germs, rather than Germans, is the preoccupation of infection literature.

This vision of us vs. them was easy to sell and propagate, and efforts on scientific as well as cultural fronts gave rise to popular stereotypes and mental shortcuts whose legacy we still observe today. A case in point: a British parasitologist, T. Spencer Cobbold, devoted much of his life to

² Steven Lehrer, *Explorers of the Body: Dramatic Breakthroughs in Medicine from Ancient Times to Modern Medicine*. Second Edition (New York, Lincoln, Shanghai: iUniverse, 2006), p. 124.

eradicating prejudices and shame related to parasite infestation. As he wrote in his seminal *Tapeworms*:

The connection between uncleanly habits and parasitic disease is by no means invariable, nay it is exceptional. In the case of hydatids it would be very unfair to suppose that any patient is suffering from hydatids because he has neglected to take due care of his person; nevertheless, there are some people who are apt to think thus, and who are even prepared to go further than this, and to assert that because Herod was 'eaten up by worms,' it must be a peculiar disgrace for any one to harbour entozoa. Time and better education will show the fallacy of entertaining such ridiculous preconceived opinions.³

Cobbold believed strongly in eradicating these harmful stereotypes through education and rejection of what he called "[t]he puerile horror which even some scientific persons affect to display in regard to the subject."⁴ But of course Cobbold's opinions, like those of any other researcher of the 19th century, were informed by views and stereotypes held by the general medical community, and while he fought some prejudices, he propagated others:

Of course any person, notwithstanding the utmost care and cleanliness, as in the cases before us, may contract a noxious parasite; nevertheless, speaking generally, it may be said that the measure of internal parasitism affecting any given class of people bears a strict relation to the degree of barbarism shown by such persons in their choice of food and drink, and in their manner of eating and drinking. This statement, if true, is not destitute of sanitary importance; moreover, it applies not alone to ourselves, but also to all the domesticated animals that serve our wants. Cleanliness is just as necessary for their welfare as for our own.⁵

What Cobbold says here by implication is that the collective 'we' are unfortunate to be *accidental* hosts of parasites and should not feel shame because of it, but that the collective 'they' are hosts of parasites because they are barbaric in their behaviour and unhygienic habits. And if the reader is not clear (although it should be quite transparent to anyone) who 'they' are, Cobbold helpfully adds: "Without doubt oriental habits are eminently favorable to fluke infection, for we are now acquainted with four

³ T. Spencer Cobbold, *Tapeworms (Human Entozoa): Their Sources, Nature, and Treatment* (London: Longmans, Green and Co., 1866), pp. 61–62.

⁴ T. Spencer Cobbold, *Parasites; A Treatise on the Entozoa of Man and Animals* (London: J. & A. Churchill, 1879), p. 3.

⁵ *Ibid.*, p. 27.

species of flukes whose geographical range is limited to eastern parts.”⁶ It is no surprise that the eastern parts of the Empire, especially those within tropical regions, abounded in species of parasites unheard of at home. What is surprising, however, is how Cobbold links “oriental habits” with occurrence of more species of flukes in the East, as if these two variables were correlated. What the “oriental habits” (and by this we mean not adhering to strict sanitary rules such as using different cutting boards and knives to prepare meat and other foods, or not using running water for washing and cleaning) do correlate with, is the demonstrable higher proportion of parasitical infections in native populations compared to British population at the time, which is probably the point Cobbold was trying to make. But it is precisely this type of mental shortcut which reinforced the idea of “dirty native” Cobbold and others like him subscribed to.

This is entirely in accord with the general views held by physicians stationed in tropical the eastern parts of the Empire. John Farley, a historian of diseases, noted:

[f]ollowing the Indian mutiny, racial disdain and distrust toward all non-Europeans had slowly enveloped the Empire. Indeed, the germ theory provided a powerful new thrust toward this racially segregated Empire. The ‘natives’ themselves had replaced the tropical climate as the major threat; they were the source of disease germs.⁷

As the twentieth century approached, the attitudes towards “natives” changed; no longer believed to have the potential to adapt to the civilised way of life, they were considered no more than repositories of infection, a belief Cobbold was happy to reiterate.

Putting aside his questionable assertions, it is worth noting that he is an important figure in the history of British medicine and zoology, and to some of his other observations I would like to draw attention. In the following passage, Cobbold compares parasites to state enemies against which only a military response is suitable:

[T]he best way of studying the entozoa is to regard them as collectively forming a peculiar *fauna*, destined to occupy an equally peculiar territory. That territory is the wide-spread domain of the interior of the bodies of man and animals. Each bearer or “host” may be viewed as a continent, and each part or viscus of his body may be regarded as a district. Each district has its special attractions for particular parasitic forms; yet, at the same time, neither

⁶Ibid., p. 29.

⁷John Farley, *Bilharzia: A History of Imperial Tropical Medicine* (Cambridge: Cambridge University Press, 2003), p. 18.

the district nor the continent are suitable as permanent resting-places for the invader. None of the internal parasites ‘continue in one stay;’ all have a tendency to roam; migration is the soul of their prosperity; change of residence the essential of their existence; whilst a blockade in the interior soon terminates in degeneration and death. I repeat it. *The entozoa constitute a specialised fauna. What our native country is to ourselves, the bodies of animals are to them. To attack, to invade, to infest, is their legitimate prerogative.*⁸

Cobbold, using richly figurative language, points to three features of parasites. First, they are ascribed characteristics of an enemy army; they “occupy,” they “attack,” they “invade.” They constitute a collective, almost of Leviathanesque grandeur, whose sole aim is to infect. He considers it their “legitimate prerogative,” as if recognising their biologically-motivated single-mindedness. Moreover, they are conditioned to move; this compulsion is inevitable, for stability and inertia spell death through degeneration. Parasites must move and must attack, their *raison d’etre*. Yet aside from this military rhetoric, another crucial issue Cobbold points to is the analogy of the body of man (and animals) and of a territory, a land, a continent even, whose different parts are attractive to different invaders. The body is thus equated with a native country, and parasites with enemy armed forces.

This idea, by no means new, can be found creatively reworked in fiction. In the following excerpt from Arthur Conan Doyle’s short story “Lot. no. 249” a medical student, Abercrombie Smith, pores over an anatomy atlas: “[he] plunged into a formidable green-covered volume, adorned with great colored maps of that strange internal kingdom of which we are the hapless and helpless monarchs.”⁹ It is interesting to note the emphasis on the “hapless” and “helpless” here, as if we-the-monarchs were not really content with being given this territory to rule over. The expression internal kingdom, or peculiar territory, points both to the paramount role of the protection of the borders and to the profound knowledge required to guard it. Although Cobbold wrote about small but still visible invaders, Doyle’s story betrays its debts to germ theory. The account in “Lot no. 249” continues thus:

Though a freshman at Oxford, the student was not so in medicine, for he had worked for four years at Glasgow and at Berlin, and this coming examination would place him finally as a member of his profession. With his firm mouth, broad forehead, and clear-cut, somewhat hard-featured face, he was

⁸ Cobbold, *Parasites*, pp. 2–3, emphasis mine.

⁹ Arthur Conan Doyle, “Lot no. 249,” *Harper’s New Monthly Magazine*, Vol. 85, No. 508 (1892), p. 529.

a man who, if he had no brilliant talent, was yet so dogged, so patient, and so strong that he might in the end overtop a more showy genius. A man who can hold his own among Scotchmen and North Germans is not a man to be easily set back. Smith had left a name at Glasgow and at Berlin, and he was bent now upon doing as much at Oxford, if hard work and devotion could accomplish it.¹⁰

Of course, Abercrombie Smith is an exemplar of ‘us’: patient and dogged, hard-working, never cutting corners and never allowing himself to slip into lax behaviour such as might be expected of ‘them’. His looks only add to the projection of authority and knowledge: a diligent medical man, an ideal product of imperial power. The repeated invocations of Glasgow and Berlin are also significant: the former was famously where Joseph Lister practiced his antiseptic surgery, the latter was where Robert Koch’s laboratories were located. Smith is not just any medical man, he is a *modern* medical man who realises the implications of germ theory and recognises the sources of infections. As the action progresses, we see him deal with a distinctly ‘other’ student of oriental languages whose interests in Egypt and Egyptology are explicitly identified as morally corrupt and potentially pathological.

The identification of Egypt as the source of infection, especially within the context of travellers and soldiers returning home ‘contaminated,’ was a recurring trope in popular fiction of the time. What Sandrine Shaw says of herself in a figurative sense, would ring uncomfortably true to Cyril Forrester, the hapless patient-zero in Guy Boothby’s *Pharos the Egyptian* (1899). Here, in every national stream he enters, he literally spreads forth the germs of the plague that he has been inoculated with by a vengeful immortal Egyptian, Pharos. Boothby’s novel, although no more than a pot-boiler, is a brilliant example of the theme of reverse colonialisation and the example of fiction in which—by means of the supernatural elements also present in Doyle’s story—the colonised Other extracts his vengeance on the uncomfortably deserving imperial powers. In his Bond-villainesque monologue, Pharos explains the course of events to his ill-fated victim, Forrester, who inadvertently plays the role of carrier, spreading disease around the actual, not corporeal, continent:

I it was who drew you to the Pyramid and decreed that you should lose your way inside, in order that when fear had deprived you of your senses I might inoculate you with the plague. Seven days later you were stricken with it in the desert. As soon as you recovered, I carried you off to Europe to

¹⁰ *Ibid.*, p. 529.

begin the work required of you. In Constantinople, Vienna, Prague, Berlin, Hamburg, wherever you went you left the fatal germs of the disease as a legacy behind you. [...] Hark! Even now the sound of wailing is to be heard in London. Hour by hour the virulence of the pestilence increases, and the strong men and weak women, youths and maidens, children and babes, go down before it like corn before the reaper.¹¹

That the plague was spread through “seeds of contagion” was postulated already in the early sixteenth century by Girolamo Francastoro.¹² What the 19th century brought in terms of novelty in this respect was the idea that people could either be intentionally infected (“inoculated”) with the germs of some disease or that they could bring home an infected token of the Other: a sarcophagus, a mummy, even a piece of jewellery, which could serve as biological weapons. While fantastical in nature, Boothby’s idea had a scientific basis, especially bearing in mind the extreme virulence of the plague microbe. According to Irwin Sherman,

Y. pestis is one of the most pathogenic bacteria: the lethal dose that kills 50% of exposed mice is a single bacterium injected intravenously. Typically, flea bites spread *Y. pestis* from rodent to rodent, but the bacterium can also survive for a few days in a decaying corpse and can persist for years in a frozen body.¹³

Even excluding Boothby’s supernatural plot points, it is entirely within the remits of today’s (and 19th-century) science to surmise the possibility of infecting someone with an ancient strain of the bacterium.

It is worth noting how similar the words of the Egyptian are to those expressed by medical professionals at the time; this is what a German specialist in tropical medicine, Arthur Looss, noted in regard to the tropical disease schistosomiasis, previously referred to as bilharzia, whose mode of transmission had at the time been hypothesised as skin-contact: “Infected troops [stationed in Egypt] would be liable to reinfect themselves, to spread the disease among other troops, and to convey the disease to any part of the world.”¹⁴ This seems particularly timely as Boothby’s 1899 novel was published parallel to a wave of exciting scientific discoveries related to bubonic plague: in 1894 Alexandre Yersin discovered and isolated “the microbe of plague” and in 1898 Paul-Louis Simond figured out the mode

¹¹ Guy Boothby, *Pharos the Egyptian* (London: Ward, Lock & Co., 1899), p. 357.

¹² Irwin W. Sherman, *Twelve Diseases That Changed Our World* (Washington: ASM Press, 2007), p. 70.

¹³ *Ibid.*, p. 77.

¹⁴ Arthur Looss, quoted in: Farley, *Bilharzia*, p. 69.

of transmission of its bacterium, *Yersinia pestis*, through the vectors of flea-infested rats.¹⁵

Perhaps the most famous example of infection literature utilising the epidemiological threats of biological attack is Bram Stoker's *Dracula*, in which, just like Cyril Forrester's, the smuggled body of the titular character is the source of the epidemic. Throughout the novel, the vampirism of the Count and his victims is referred to in medical terms: as an infection with the potential for exponential growth. Here is how Dr. Helsing, in his idiosyncratic English, explains it to Mina Harker:

This monster has done much harm already, in the narrow scope where he find himself, and in the short time when as yet he was only as a body groping his so small measure in darkness and not knowing. All this have I told these others [...]. I have told them how the measure of leaving his own barren land—barren of peoples—and coming to a new land where life of man teems till they are like the multitude of standing corn, was the work of centuries. Were another of the Un-Dead, like him, to try to do what he has done, perhaps not all the centuries of the world that have been, or that will be, could aid him. [...] He have infect you— [...]. He infect you in such wise, that even if he do no more, you have only to live—to live in your own old, sweet way; and so in time, death, which is of man's common lot and with God's sanction, shall make you like to him. This must not be!¹⁶

Earlier in the novel, Jonathan Harker, terrorised into complicity like Cyril Forrester by Pharos, notes the same fear of the terrible fate awaiting London if Dracula's wish to be smuggled there is realised:

He lay like a filthy leech, exhausted with his repletion. [...] I stopped and looked at the Count. There was a mocking smile on the bloated face which seemed to drive me mad. This was the being I was helping to transfer to London, where, perhaps, for centuries to come he might, amongst its teeming millions, satiate his lust for blood, and create a new and ever-widening circle of semi-demons to batten on the helpless.¹⁷

Not without reason is Dracula's body compared to those of blood-thirsty parasites; he is explicitly called a leech but his *modus operandi* more closely resembles that of a blood-sucking insect: feeding on the blood of his victims, infecting them with a deadly disease. Stoker's vampirism could as well represent malaria or yellow fever. Both these passages invoke the

¹⁵ Sherman, *Twelve Diseases*, pp. 71–72.

¹⁶ Bram Stoker, *Dracula* (Ware: Wordsworth, 2000), p. 266.

¹⁷ *Ibid.*, pp. 44–45.

numbers of potential victims and their helplessness, and both contain calls to arms addressed to anyone concerned.

Stoker paints a chilling vision of an invasion which fortunately is foiled by Dr. Helsing and the power of science—an outcome as predictable as inevitable in the golden age of microbiology. This result echoes words written by Louis Pasteur in his 1878 article on germ theory:

If it is a terrifying thought that life is at the mercy of the multiplication of these minute bodies, it is a consoling hope that Science will not always remain powerless before such enemies since [...] we find that simple exposure to air is sufficient at times to destroy them.¹⁸

Dracula is an ever-living proof of the validity of this conviction: being Un-Dead for centuries, he succumbs to relatively insignificant stab wounds and crumbles into dust. It was of vital importance to the nation under threat (actual or imaginary) to be given a reliable ideological pivot: modern, Western science—medical and military—is invincible.

While Stoker, Boothby, and other writers of the infection literature genre focused on the threat of germs as bringers of infection, disease, and death, H. G. Wells suggests a very modern reading of our ever-present microbial inhabitants: the good bacteria. In *The War of the Worlds* (1897), it is germs, not weapons, that save the day and it is the simple exposure to the Earth conditions, almost as foretold by Pasteur, that destroys the invading enemy:

These germs of disease have taken toll of humanity since the beginning of things—taken toll of our prehuman ancestors since life began here. But by virtue of this natural selection of our kind we have developed resisting power; to no germs do we succumb without a struggle, and to many—those that cause putrefaction in dead matter, for instance—our living frames are altogether immune. But there are no bacteria in Mars, and directly these invaders arrived, directly they drank and fed, our microscopic allies began to work their overthrow. Already when I watched them they were irrevocably doomed, dying and rotting even as they went to and fro. It was inevitable. By the toll of a billion deaths man has bought his birthright of the earth, and it is his against all comers; it would still be his were the Martians ten times as mighty as they are. For neither do men live nor die in vain.¹⁹

¹⁸ Louis Pasteur, “Germ Theory and Its Applications to Medicine And Surgery,” trans. H. C. Ernst, in: *Scientific Papers: Physiology, Medicine, Surgery, Geology*, Vol. 38, ed. Charles W. Eliot (New York: P.F. Collier and Son Company, 1910), p. 384.

¹⁹ H. G. Wells, *The War of the Worlds* (London, Melbourne, Toronto: Heinemann, 1958), p. 210.

Here the internal battle of the invading germs with the immune system is externalised: while the Earth is being invaded by Martians, they in turn are being invaded by bacteria to whose presence humans have been used since the dawn of time. So, the germs which have the power to decimate retain it but are reclassified as “microscopic allies” because their otherwise horrific characteristic can be used to fight the enemy. Wells chooses his battles carefully: while bacteria are allies, the definition of the Other is pushed to the extreme: there is nothing more other than extra-terrestrial. Territory thus is semiotically moved away from the corporeal to the planetary but germs are still exercising their legitimate prerogative: to attack, invade, and infect.

Popular fiction of the late 19th and early 20th century, together with the science of medicine, utilised parallel metaphors and similes to analogous ends, uniting their forces, as it were, to fight their common enemy. Employing the ‘body-as-a-peculiar-territory’ and ‘body-as-a-repository-of-infection’ rhetorical devices, these texts on the one hand simplified complex concepts and thus facilitated broader understanding of the mechanisms of infection. On the other hand, these necessary simplifications inevitably led to perversions and reinforcement of stereotypes, filtered through prejudicial racial and ethnic attitudes characteristic of the time. Bodies displaying signs (or evoking mere suspicion) of infection would automatically be considered dangerous bodies, the threat from whom was to be identified and contained. In a reductive manner typical of politically biased literature, narratives of infection focus their attention on imaginary problems and conveniently leave the existent ones undisturbed and unvoiced.

The visions of invasions and infections are ultimately visions of lost control and helplessness; visions both feared and despised by military and medical rhetoric. Ultimately, at least in the period concerned, these anxieties are placated by the Imperial narrative of strength and diligence in identifying and disposing of foreign elements. When Cobbold offers the hopeful remark that he “should like to see a small army of helminthologists rise up and lay siege to the fortresses at present securely held by thousands of death-dealing parasites,”²⁰ he declares war for the integrity of the body—that peculiar territory over which, he believes, humans will ultimately reign supreme. While these wishes in the end did not come true, at the time his propagandist declaration fulfilled its function: to assert military and medical dominance over the loathed enemy.

²⁰ Cobbold, *Parasites*, p. viii.

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The aim of this article is to show how the military rhetoric related to infection manifested itself in works of science and popular fiction of the late 18th century and early 19th century; how human bodies were perceived as battlefields on which the forces of infection and resistance fought; and finally, how similes taken from literary texts were used to show and explain the strategies infective agents employed to infiltrate and terrorise their unsuspecting victims. This paper focuses on scientific and literary texts which contain two examples of uses of bodies in this ideological war: similes of bodies as peculiar territories under external threat, and bodies as sources of contagion, smuggled across the borders of actual territories.

Keywords: body, invasion, infection, territory, 19th century

Słowa kluczowe: ciało, inwazja, infekcja, terytorium, XIX wiek

